

### R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

### SUPPORT FOR CLAIM AMENDMENTS

Support for new claims 34 and 35 can be found in the drawings as originally filed, for example, FIGS. 1, 3-5 and 8 and in the specification as originally filed, for example, on page 23, lines 6-8. As such, no new matter has been introduced.

### CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claims 3-7, 11-13, 16, 25-28 and 30-33 under 35 U.S.C. §103(a) as being unpatentable over Fuji et al. (U.S. Patent No. 5,537,381; hereinafter Fuji) in view of Ganter et al. (U.S. Patent No. 5,802,112; hereinafter Ganter) is respectfully traversed and should be withdrawn.

The rejection of claims 8-10 under 35 U.S.C. §103(a) as being unpatentable over Fuji and Ganter in view of Pettigrew et al. (U.S. Patent No. 4,703,469; hereinafter Pettigrew) is respectfully traversed and should be withdrawn.

The rejection of claims 17-20 and 24 under 35 U.S.C. §103(a) as being unpatentable over Fuji and Ganter in view of McNeil et al. (U.S. Patent No. 5,995,305; hereinafter McNeil) is respectfully traversed and should be withdrawn.

The rejection of claims 21-23 and 29 under 35 U.S.C. §103(a) as being unpatentable over Fuji and Ganter in view of Kobayashi et al. (U.S. Patent No. 5,978,333; hereinafter Kobayashi) is respectfully traversed and should be withdrawn.

With respect to claims 3 and 16, three criteria are required to establish a *prima facie* case of obviousness. The Examiner must show that (1) there is some **suggestion or motivation**, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references, (2) there is **a reasonable expectation of success**, and (3) the prior art reference (or combination of references) teaches or suggests **all of the claim limitations**.<sup>1</sup> The Federal Circuit has held that both the suggestion to modify or combine the references and the reasonable expectation success **must be found in the prior art itself, not merely in Appellant's disclosure**.<sup>2</sup> Furthermore, the Board has held that the claimed invention is obvious only if either the references expressly or implicitly suggest the claimed invention, or a convincing line of reasoning is presented by the Examiner as to why an artisan would have found the claimed invention to be obvious in light of the teachings of the cited references.<sup>3</sup>

---

<sup>1</sup>Manual of Patent Examining Procedure (MPEP) §2142. (emphasis added).

<sup>2</sup>See *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991), emphasis added.

<sup>3</sup>See *Ex Parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Inter. 1985).

The Office Action fails to provide a convincing line of reasoning why an artisan would have been motivated to combine the references as required by M.P.E.P §2142. Specifically, the Examiner's conclusory statement that "one of ordinary skill in the art at the time of the invention would have realized that reduction of complex calculations and high encoding efficiency would be a good characteristics to have while managing data in the system of Fuji" does not adequately address the issue of motivation to combine. The factual question of motivation is material to patentability, and cannot be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher. In particular, the Office Action fails to make particular findings as to the reason the skilled artisan, **with no knowledge of the presently claimed invention**, would have **selected** Fuji and Ganter for combination to obtain the claimed invention (see section 3 on pages 2-4 of the Office Action).

For example, the Office Action appears to depend on Ganter's statement of the desirability of reducing the complex calculations for decoding data from multiple waves. However, the Office Action fails to identify any complex calculations or multiple waves containing data that are disclosed by Fuji and that would be reduced by the technique taught by Ganter. In particular, Ganter states:

20 Instead of performing complex calculations to  
decode data from multiple waves, it is  
desirable to select a set of sinusoidal waves  
exhibiting controllable characteristics such  
that the resulting interference pattern  
arising from combining, or superimposing,  
these waves can be detected (decoded) as a  
unique code symbol (data) to provide high  
speed communication of information,  
particularly digital information, across large  
distances (column 1, lines 41-48 of Ganter).

25 The Office Action does not present evidence or explain how  
modifying Fuji to select a set of sinusoidal waves exhibiting  
controllable characteristics such that the resulting interference  
pattern arising from combining, or superimposing, these waves can  
be detected (decoded) as a unique code symbol (data) to provide  
high speed communication of information, particularly digital  
information, across large distances would be desirable.  
Furthermore, the Office Action fails to present any evidence or  
convincing line of reasoning with respect to a reasonable  
expectation of success in such a modification of Fuji (see section  
3 on pages 2-4 of the Office Action). The mere fact that  
references can be combined or modified does not render the  
resultant combination obvious unless the prior art also suggests  
the desirability of the combination (M.P.E.P. §2143.01).

30 Since the Federal Circuit has held that both the  
suggestion to modify or combine the references and the reasonable  
expectation of success MUST be found in the prior art itself, not  
merely in the Applicants' disclosure, and the Office Action fails  
(i) to establish the desirability of modifying Fuji with Ganter or  
(ii) to even allege, let alone factually establish, a reasonable

expectation of success in modifying Fuji with Ganter, it follows that the Office Action fails to meet the Office's burden to factually establish a *prima facie* case of obviousness as required by MPEP §2142. As such, the presently claimed invention is fully patentable over the cited references and the rejections should be withdrawn.

Furthermore, Fuji and Ganter do not appear to be analogous art. Specifically, Fuji and Ganter have different classifications. In particular, Fuji has a class of 369 and a subclass of 116, while Ganter has a class of 375 and a sub class of 260. Therefore, by the Patent Office's own classification system the references do not appear to be analogous. Furthermore, Fuji and Ganter appear to be directed to different problems. Specifically, Fuji is directed to a test-writing recording control method, a test writing recording control apparatus and an optical recording medium (Title of Fuji). In contrast, Ganter is directed to multi-level, multi-frequency interference pattern analog waveform encoding of digital data **for transmission** (Title of Ganter, emphasis added). Furthermore, Ganter appears silent regarding test writing on optical discs or an optical recording medium as dealt with by Fuji. Therefore, Fuji and Ganter do not appear to be analogous art as required for a rejection under 35 U.S.C. §103 (see MPEP §2141.01(a)). As such, the presently claimed invention is fully patentable over the cited references and the rejections should be withdrawn.

Furthermore, with respect to claim 16, the Office Action does not appear to have addressed how the specific claim limitation of claim 16 are met by the cited references. Specifically, the Office Action states "As to claim 16, it is rejected for the same reasons set forth in the rejection of claim 3" (see page 5, lines 1-2 of the Office Action). However, the rejection of claim 3 does not address how the cited references are considered to teach or suggest the specific limitations which are recited in claim 16, but not recited in claim 3. In particular, the rejection of claim 3 does not appear to address how the combination of Fuji and Ganter teach or suggest (i) generating a plurality of readout waveforms in response to **marks produced by the plurality of candidate write symbols**, (ii) analyzing the readout waveforms **produced by the marks** to determine **a set of readout waveforms that match a read/write channel that includes the recording medium** and (iii) selecting selected ones of the plurality of candidate write symbols that **correspond to the readout waveforms that match the read/write channel that includes the recording medium** to be included in the set of write symbols, as presently claimed. Therefore, the Office Action fails to meet the Office's burden to factually establish that the cited references teach or suggest each and every element of the presently claimed invention (MPEP §2142). As such, the presently claimed invention is fully patentable over the cited references and the rejections should be withdrawn.

With respect to claims 8-10, Fuji and Ganter appear silent regarding inserting guard bands between the write symbols on a track, as presently claimed. Specifically, the Office Action admits that "Fuji does not specifically disclose that the same goal of reducing thermal crosstalk and inter-symbol interference can also be achieved by well-known method of inserting guard bands" (see page 6, line 6-8 of the Office Action).

Pettigrew does not cure the deficiencies of Fuji and Ganter. Specifically, Pettigrew does not appear to teach or suggest inserting guard bands **between the write symbols on a track**, as presently claimed. In particular, The Office Action fails to present supporting evidence for the conclusory statements that "Pettigrew discloses guard bands between tracks, but since different write symbols can be and are generally recorded on different tracks also. The same guard bands or concept of the guard bands are equally applicable to guard bands between symbols." Such conclusory statements do not adequately address the issue of motivation to modify the teachings of Pettigrew. The factual question of motivation is material to patentability, and cannot be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to a combination of references, simply to use that which the inventor taught against its teacher. Furthermore, the Office Action also fails to present factual evidence or a convincing line of reasoning to support the conclusory statement that "Without guard bands data cannot be read properly and system

will not function at all." Applicants' representative respectfully requests that the Examiner provide factual evidence on the record or an affidavit under 37 CFR §1.104(d)(2) with respect to the conclusory statements made in support of the rejection of claims 8-10 or withdraw the rejection.

With respect to claim 12, Fuji and Ganter appear silent regarding using a cross correlation coefficient calculation to recover the data, as presently claimed. Specifically, the portion of Fuji cited in the Office Action states:

As shown in FIG. 10, the test-writing recording control apparatus of the present embodiment has an almost same arrangement as that of the apparatus of the first embodiment shown in FIG. 1. Difference points are that duty condition determining means 50 for determining a condition so as to optimize a duty of the reproduced signal and optimum value determining means 51 are added.

In other words, the heat interference condition determining means 49 is composed of the repeat pattern level detection means 1, the isolated pattern level detection means 2, the comparison means 3 and the repeat/isolation pattern generating means 4 which are shown in FIG. 1. In FIG. 10, in the optical head 47 to which a recording signal  $z$  is transmitted, a semiconductor laser driving circuit 52 for outputting a driving electric current  $I_w$  which drives the semiconductor laser 23 based upon the recording signal  $z$  shown in FIG. 11, the semiconductor laser 23 and the photo detector 22 which are shown in FIG. 1 are provided (column 13, lines 50-67 of Fuji).

Nowhere in the cited passage does Fuji mention calculating a cross correlation coefficient to recover data. Furthermore, Fuji states that:



repeat pattern level detection means 1 (first level detection means) for **detecting a peak level v1** of the reproduced signal w which correspond to the repeat mark pattern y;

isolated pattern level detection means 2 (second level detection means) for **detecting a peak level v2** in a section of the reproduced signal w which corresponds to the isolated mark pattern x; and

comparison means 3 for outputting **the level difference .delta.v between the peak levels v1 and v2** to the repeat/isolation pattern generating means 4 (column 8, lines 33-43 of Fuji, emphasis added).

Fuji is silent regarding calculation of a cross correlation coefficient involved in either (i) detecting the peak levels V1 and V2 or (ii) the comparison means 3 in FIG. 1 of Fuji outputting the level difference Delta\_V between the first peak level V1 and the second peak level V2 (see FIG. 1 and column 8, lines 42-43 of Fuji). Since Fuji is silent regarding calculating a cross correlation coefficient to recover data, it follows that Fuji does not disclose or suggest each and every element of the presently claimed invention, arranged as in claim 12.

Ganter does not cure the deficiency of Fuji. Specifically, Ganter appears silent regarding calculation of a cross correlation coefficient. Since Fuji and Ganter appear silent regarding calculation of a cross-correlation coefficient, it follows that the combination of Fuji and Ganter do not teach or suggest calculating a cross-correlation coefficient to recover data, as presently claimed. Therefore, the Office Action fails to

meet the Office's burden to factually establish that the cited references teach or suggest each and every element of the presently pending claim 12 (MPEP §2142). As such, the presently pending claim 12 is fully patentable over the cited references and the rejection should be withdrawn.

Similarly, claim 13 recites a combination of a cross correlation coefficient and using a comparison of a DC level to recover the data. Since, as shown above, Fuji and Ganter appear to be silent regarding a cross correlation coefficient being calculated to recover data, it follows that Fuji and Ganter do not disclose or suggest a combination of a cross correlation coefficient AND comparison of a DC level to recover data, as presently claimed. As such, claim 13 is fully patentable over the cited reference and the rejection should be withdrawn.

Claims 4-11 and 17-33 depend, directly or indirectly, from either claim 3 or claim 16 which are believed to be allowable. As such, the presently claimed invention is fully patentable over the cited reference and the rejection should be withdrawn.

New claims 34 and 35 depend directly from either claim 3 or claim 16 which are believed to be allowable. As such, the presently claimed invention is fully patentable over the cited references.

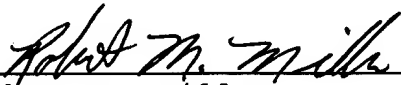
Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative at 586-498-0670 should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge Deposit Account No. 12-2252.

Respectfully submitted,

CHRISTOPHER P. MAIORANA, P.C.

  
Robert M. Miller  
Registration No. 42,892

Dated: April 19, 2005

c/o Henry Groth  
LSI Logic Corporation  
1621 Barber Lane, M/S D-106 Legal  
Milpitas, CA 95035

Docket No.: 03-2454 / 1496.00366